



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,200	11/01/2001	Sacha Corbeil	2545-000014	5823
27572	7590	11/03/2004	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			LEE, DAVID J	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/004,200	CORBEIL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	David Lee	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/01/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/15/02</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Drawings***

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figures 2 and 4 are difficult to read. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "50" (paragraph [0028], line 1). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities: in paragraph [0033], line 3, numeral "86" should be changed to "88".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-5, 8, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Barnard (US Patent No. 6,742,154).

Regarding claims 1 and 14, Barnard teaches an adaptive method for applying chirp to an optical signal traversing through an optical network, comprising: applying chirp to an optical data signal at a transmitter in the optical network (in col. 5, lines 59-62, Barnard discloses that if the transmitter chirp is independently adjustable, then it is a parameter which can be optimized through the method of Barnard's invention. Barnard's method in col. 4, lines 49-54, discloses that a parameter is initially applied at the transmitter, and in this case, the parameter is the chirp value. Therefore, a chirp is applied to the signal at the transmitter. See also col. 2, lines 64-67: note that adjustable parameters that can be used in the invention include transmitter extinction ratio); transmitting the optical data signal through the optical network, the optical data signal having error detection data embedded therein (col. 4, lines 49-50 and fig. 4, 402: the

Art Unit: 2633

FEC is embedded in the signal at transmitted through the optical network); determining an error rate for the optical data signal at an egress point of the optical network, where the error rate is based on the error detection data embedded in the optical data signal (col. 2, lines 47-50: the error rate is determined at the receiver and is based on the FEC encoded in the signal); transmitting the error rate for the optical data signal to the transmitter and adjusting the chirp being applied to the optical data signal at the transmitter based on the error rate for the optical data signal (col. 2, lines 47-51).

Regarding claim 3, Barnard discloses using an external phase modulator to apply chirp (col. 5, 60).

Regarding claim 4, Barnard discloses dithering the amplitude of the chirp applied to the optical data signal (col. 4, line 23: as mentioned above, the parameter is the chirp value).

Regarding claim 5, Barnard discloses using feedback error control to minimize the error rate detected at the egress point (col. 3, lines 14-22: the receiver, which is the receiver, uses feedback error control to minimize the error rate by adjusting the chirp and correcting the BER).

Regarding claim 8, Barnard discloses deriving the error rate from the number of corrected errors in a forward error correction scheme (col. 4, lines 49-51).

3. Claims 1-3, 6-7, 9-17, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Satoh (US Patent No. 6,583,910).

Regarding claims 1 and 14, Satoh teaches an adaptive method for applying chirp to an optical signal traversing through an optical network, comprising: applying chirp to an optical data signal at a transmitter in the optical network (col. 5, lines 50-52); transmitting the optical data signal through the optical network, the optical data signal having error detection data embedded therein (col. 6, lines 60-62: it is inherent that the optical signal has error detection data embedded because the optical receiver monitors the error of the transmitted light); determining an error rate for the optical data signal at an egress point of the optical network, where the error rate is based on the error detection data embedded in the optical data signal (col. 6, lines 60-62); transmitting the error rate for the optical data signal to the transmitter (col. 6, lines 62-63); and adjusting the chirp being applied to the optical data signal at the transmitter based on the error rate for the optical data signal (col. 6, lines 62-65).

Regarding claim 2, Satoh teaches receiving the optical data signal at a receiver in the optical network and optimizing data recovery at the receiver, prior to the step of determining an error rate for the optical data signal (col. 14, lines 7-10: the receiver 73 receives the signal and demodulates the light and performs a parity check, which checks for errors in the data, optimizing data recovery).

Regarding claim 3, Satoh teaches using an external phase modulator to apply the chirp (col. 19, lines 62-63).

Regarding claim 6, Satoh teaches dithering phase of the chirp applied to the optical data signal (col. 20, line 4: after the signal is phase modulated, the chirp is changed continuously a.k.a. dither, and col. 20, lines 11-16).

Regarding claims 7 and 12, Satoh teaches minimizing the error rate detected at the egress point through the use of feedback error control (col. 6, lines 59-65: the error rate detected at the egress point is adjusted through the use of feedback from the error rate of the transmitted light).

Regarding claim 10, Satoh teaches all the limitations as applied in claims 1, 2 and 6.

Regarding claims 9 and 11, Satoh teaches using an optical supervisory channel to transmit the error rate (fig. 21, 100, and col. 18, lines 9-20).

Regarding claim 13, Satoh further teaches dithering the other of amplitude and phase (col. 20, lines 47-54: the amplitude is dithered because the amplitudes of the signals are regulated or dithered in accordance with the optical frequency fluctuation).

Regarding claim 15, Satoh teaches that the receiver is operable to optimize data recovery from the optical data signal prior to transmitting the error rate for the optical data signal to the transmitter (col. 14, line 10: the receiver 73 performs a parity check, which checks for errors in the data which optimizes data recovery).

Regarding claim 16, Satoh teaches that the transmitter includes an external phase modulator for applying chirp to the optical data signal (col. 19, lines 62-63).

Regarding claim 17, Satoh teaches that the phase modulator (col. 19, lines 62-63) is operable to dither at least one of amplitude and phase of the chirp being applied to the optical data signal (col. 20, line 4: the phase-modulated chirp is changed continuously a.k.a. dithered) and adjust the chirp by using feedback error control to minimize the error rate detected at the receiver (col. 6, lines 62-65).

Regarding claim 19, Satoh teaches that the transmitter and receiver are interconnected by a fiber optic medium, the fiber optic medium being partitioned into one or more payload data channels (fig. 18, the fiber 71 is considered to be a medium to transmit the optical data) and at least one optical supervisory channel (fig. 18, the dashed line connecting the two supervisory units 100 is the supervisory channel), wherein the error rate for the optical data signal is transmitted via the optical supervisory channel from the receiver to the transmitter (col. 18, lines 9-21).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 10, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnard in view of Buchwald et al. (US Patent No. 6,791,388).

Regarding claim 2, Barnard teaches all the limitations except for the limitation of optimizing the data recovery at the receiver. Buchwald discloses optimizing data recovery at a receiver by matching its operating characteristics with the characteristics of the received data signal (col. 1, 51-58). One of ordinary skill in the art at the time of invention would have been motivated to optimize data recovery in the chirp system of Barnard in order to reliably process data signals and minimize data errors (col. 1, line



Art Unit: 2633

51). If not inherent, it would have been obvious for an artisan at the time of invention to optimize data recovery as indicated by Buchwald in the system of Barnard.

Regarding claim 10, Barnard teaches all the limitations as applied to claims 1 and 4 above except for the limitation of optimizing the data recovery at the receiver. Buchwald discloses optimizing data recovery at a receiver by matching its operating characteristics with the characteristics of the received data signal (col. 1, 51-58). One of ordinary skill in the art at the time of invention would have been motivated to optimize data recovery in the chirp system of Barnard in order to reliably process data signals and minimize data errors (col. 1, line 51). If not inherent, it would have been obvious for an artisan at the time of invention to optimize data recovery as indicated by Buchwald in the system of Barnard.

Regarding claim 18, Barnard discloses that the receiver includes a forward error correction decoder that is operable to determine the error rate based on the number of corrected errors associated with the optical data signal (col. 2, lines 47-51).

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) US Patent No. 5,754,322 is cited to show a prechirped system utilizing an external modulator and a supervisory channel.

2) US Patent No. 6,229,631 is cited to show a transmission system applying a chirp parameter and utilizing a supervisory channel.

Art Unit: 2633

3) US Patent No. 4,982,446 is cited to show an optical network where the fiber optic medium is partitioned into a payload data channel and an optical supervisory channel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday, 9:00 am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lee

*M. R. Sedighian*  
**M. R. SEDIGHIAN**  
**PRIMARY EXAMINER**